



Commercial Off The Shelf (COTS)

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Why use COTS products?



- Military getting out of the specification business
- Preference for performance criteria specs
- Expectation of lower-cost
- Expectation of always getting the latest technology available

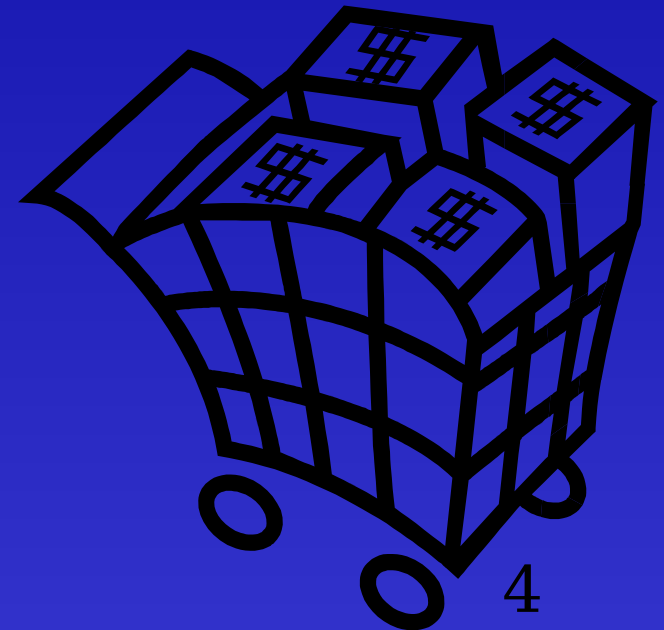
How COTS save money?

- Avoids compliance to one-size-fits-all type specification
- Saves cost of developing and qualifying a product to a specification
- Promotes competition in the marketplace
- Possibly allows more selections to choose from



Benefits of buying COTS

- Ease of catalog shopping
- Assurance of availability
- Assurance the product satisfies marketplace



Problems with COTS

- Lack of controls and traceability
- Lack of guaranteed performance & service
- Limited to selected part
- Nonconformance to EPA, AQMD, etc. rules
- No guarantee of continued availability



COTS changes how products are purchased

- No Mil or Company specs to invoke requirements
- Must impose any needed requirements
- No second source unless you so specify
- No warranties unless implied and agreed upon
- No pipeline to manufacturer's data & test results



COTS changes the handling of products

- Need to implement shelf life controls
- Need to ascertain handling procedures
- Need to ascertain product's compliance with EPA, AQMD, etc. rules and regulations

COTS changes who & how products are tested

- May need to send to Receiving & Test
- Must collect desired applicable service data
- Must work with supplier as to who tests what and how often
- In-house test results may not mean anything to the supplier in the event of a dispute

COTS changes how products are maintained

- Must determine when to replace
- Must learn how to repair, protect, and refresh a COTS product
- Must learn where to get on-going support

Where COTS-specified products are used

- Since 1994, mandated by government on many electronic applications
- Mandated by the Navy on the “SWAN” communications electronics on LPD-17 ship class
- Specified on the Army EPLRS program
- Allowed on many other programs at Raytheon

What are our customer concerns?

- Resistance to fungus growth
- Resistance to corrosion
- Effect on the environment, pollution laws...
- Safety, flammability and toxicity issues
- Future availability and lead times
- Cost

“Tin Whisker Problem”

- Electronic hardware with pure tin coating prone to tin whisker problem (electrical shorting)
- Related to commercial desire for lead-free solder finishes on leads, lands, etc.
- Missile failures in spite of ban in place on pure tin
- At least a billion dollars worth of satellites lost

Background “tin whisker”

- Defined as spontaneous, single-crystal, hair-like growths from tin surfaces
- Can vaporize into a 200-amp plasma if it arcs in a vacuum
- Growth can begin within hours, after years of dormancy, or anytime in between
- Conversion to pure tin underway because of:
(1) anticipated legislation & (2) business reasons---“green” electronic products sell

SUMMARY

- Buying parts and materials COTS often required
- Must be aware of unexpected changes in purchasing, handling, testing and maintenance of COTS products
- Customers see advantage of buying COTS
- Be aware that many product assurances and guarantees may be forfeited with COTS
- COTS buying has often proven to save costs and lead time versus buying per military or company spec